In th claims:

1. (Currently Amended) A conductivity sensor comprising:

a first annular electrode having a first inner diameter;

a second annular electrode having the first inner diameter; and

a tubular portion disposed axially between said first electrode and said second electrode, said tubular portion defining a sensor cell with said first annular electrode and said second annular electrode;

said cell having a second inner diameter that is greater than said first inner diameter and a cell length between said first electrode and said second electrode;

said first electrode and said second electrode extending axially from said tubular portion.

2. (Original) A conductivity sensor as recited in claim 1 wherein said cell has a cell constant defined by the formula:

$$\pi D_2^2/4L$$

where D_2 is said second inner diameter.

3. (Original) A conductivity sensor as recited in claim 1 further comprising a seal material between said first annular electrode and said tubular portion.

4. (Previously Amended) A conductivity sensor as recited in claim 1 further comprising a control circuit generating an output corresponding to a conductivity of a fluid between said first annular electrode and said second annular electrode.

5. (Original) A conductivity sensor as recited in claim 1 further comprising a calibration circuit.

6. (Original) A conductivity sensor as recited in claim 5 wherein said calibration circuit comprises a zero adjustment circuit.

7. (Original) A conductivity sensor as recited in claim 5 wherein said calibration circuit comprises a gain adjustment circuit.

8. (Previously Amended) A conductivity sensor as recited in claim 7 wherein said gain adjustment circuit is coupled to said first electrode.

9. (Original) A conductivity sensor as recited in claim 1 further comprising a buffer circuit coupled to said first electrode.

10. (Previously Amended) A conductivity sensor as recited in claim 4 wherein said control circuit is an operational amplifier-based.

B1 Cont

11. (Currently Amended) A conductivity sensor <u>for coupling in a coolant path</u> comprising:

a first annular electrode having a first inner diameter and a first outer diameter, said first annular electrode having a first threaded portion said first outer diameter;

a second annular electrode having a second inner diameter and a second outer diameter, said second annular electrode having a second threaded portion said second outer diameter; and

a tubular portion disposed axially between said first electrode and said second electrode, said tubular portion having a third inner diameter greater than said first inner diameter and said second inner diameter,

said tubular portion, said first electrode, and said second electrode defining a sensor cell having said third inner diameter, said cell having a cell length between said first electrode and said second electrode;

<u>said first electrode and said second electrode extending axially from said tubular portion so that said coolant path may be coupled to the first electrode and the second electrode</u> .

12. (Original) A sensor as recited in clam 11 wherein said first inn r diameter and said second inner diameter are equivalent.

13. (Original) A sensor as recited in clam 11 wherein said first outer diameter and said second outer diameter are equivalent.

14. (Original) A conductivity sensor as recited in claim 11 further comprising a seal material between said first annular electrode and said tubular portion.

15. (Original) A conductivity sensor as recited in claim 11 wherein said seal material comprises polytetrafluoroethylene.

B1 Cont

16. (Currently Amended) A method of assembling a conductivity sensor comprising:

coupling a first annular electrode having a first inner diameter to a tubular portion;

coupling a second annular electrode having the first inner diameter to the tubular portion so that the tubular portion is positioned axially between said first electrode and said second electrode and so that the first electrode and the second electrode extends axially from the tubular portion,

defining a sensor cell having a second inner diameter that is greater than said first inner diameter with said first annular electrode, said second annular electrode, and said tubular portion.

17. (Original) A method as recited in claim 16 wherein said step of coupling a first annular electrode having a first inner diameter to a tubular portion comprises threadably coupling a first annular electrode having a first inner diameter to a tubular portion.

18. (Original) A method as recited in claim 16 further comprising coupling a control circuit to said first annular electrode and said second annular electrode calibrating the control circuit.

B1 Cont

19. (Original) A method as recited in claim 18 wherein calibrating said control circuit comprises open circuit zeroing said control circuit.

20. (Original) A method as recited in claim 18 wherein calibrating said control circuit comprises adjusting the gain of a buffer circuit.